

SECOND PRELIMINARY AMENDMENT UNDER
35 U.S.C. § 1.135(b)
USAN 09/140,752

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video information, said set of decision thresholds being selected from a plurality of sets of decision thresholds suitable for different decision formats.

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~~49~~. In a system for receiving and adaptively processing a carrier modulated with video information in one of a plurality of different modulation formats suitable for satellite, terrestrial or cable transmission, an adaptive demodulator network comprising:

C1
CONT. a timing recovery network for recovering timing data from said modulated carrier;

an adaptive carrier recovery network responsive to said timing data for recovering said video information from said carrier in said different modulation formats; and

a selectable decision network, included in said adaptive carrier recovery network, for applying a set of decision thresholds to data provided by said carrier recovery network to recover said video information, said set of decision thresholds being selected from a plurality of sets of decision thresholds suitable for said different modulation formats.

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~~50~~. A system according to one of claims ~~48~~⁶⁹ and ~~49~~⁷⁰, further including a selectable differential decoder for differentially decoding a signal produced by said carrier recovery network.

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~~51~~. A system according to one of claims ~~48~~⁶⁹ and ~~49~~⁷⁰, further including a differential decoder for differentially decoding a signal produced by said carrier recovery network.

⁷³
~~52~~. A system according to one of claims ~~48~~⁶⁹ and ~~49~~⁷⁰, wherein said selectable decision network applies decision thresholds for a VSB one-dimensional symbol constellation and for a QAM two-dimensional symbol constellation.

⁷⁴
~~53~~. A system according to one of claims ~~48~~⁶⁹ and ~~49~~⁷⁰, wherein said selectable decision network applies decision thresholds appropriate for at least two of PAM, QPSK, VSB and QAM constellations.

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~~54~~. A system according to one of claims ~~48~~⁶⁹ and ~~49~~⁷⁰, wherein the modulation format of said video information uses a symbol constellation containing a plurality of symbol points.

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~~55~~. A system according to claim ⁷⁵~~54~~, wherein one of said modulation formats is a vestigial-sideband amplitude-modulation format with a one-dimensional symbol constellation having eight symbol points.

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~~56~~. A system according to claim ⁷⁵~~54~~, wherein one of said modulation formats is a quadrature-amplitude-modulation format with a two-dimensional symbol constellation having at least sixteen symbol points.

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CONT.
⁷⁸
~~57~~. A system according to one of claims ⁶⁹~~48~~ and ⁷⁰~~49~~, wherein said carrier recovery network further includes a selectable equalizer network for compensating for errors associated with a transmission channel, wherein the configuration of said equalizer filter network is selected in accordance with the modulation format of said modulated carrier.

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~~58~~. A system according to claim ⁶⁸~~57~~, wherein said selectable equalizer network includes a feed forward equalizer filter and a decision feedback equalizer.

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~~80~~⁸⁰. A system according to one of claims ~~48~~⁶⁹ and ~~49~~⁷⁰, wherein said adaptive carrier recovery network is automatically configured to be compatible with the modulation format of said carrier modulated with video information.

~~81~~⁸¹. A system according to one of claims ~~48~~⁶⁹ and ~~49~~⁷⁰, wherein said adaptive carrier recovery network is automatically configured to be compatible with the modulation format of said carrier modulated with video information, in response to a control signal generated by detection apparatus for determining the modulation format of said carrier modulated with video information.

~~82~~⁸². In a receiver for adaptively processing an input signal containing data in one of a plurality of different input formats and wherein said data is encoded in one of a plurality of different coding formats, apparatus comprising:

an adaptive timing recovery network for recovering timing information from said input signal as a function of a received input signal format;

an adaptive data recovery network responsive to said timing information for recovering said data;

a selectable decision network, included in said data recovery network, for applying a set of decision thresholds to data provided by said data recovery network to recover said data, said set of decision thresholds being selected from a plurality of sets of decision thresholds suitable for different input signal formats; and

an adaptive decoder for selectively decoding said recovered data as a function of a received data coding format to produce recovered and decoded output data.

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CONT.

⁸³
~~82~~. In a receiver for adaptively processing an input signal containing data in one of a plurality of different input formats and wherein said data is encoded in one of a plurality of different coding formats, apparatus comprising:

an adaptive timing recovery network for recovering timing information from said input signal as a function of a received input signal format;

an adaptive carrier recovery network responsive to said timing information for recovering said data;

a selectable decision network, included in said carrier recovery network, for applying a set of decision thresholds to data provided by said carrier recovery network to recover said data,

said set of decision thresholds being selected from a plurality of sets of decision thresholds suitable for different input signal formats; and

an adaptive decoder for selectively decoding said recovered data as a function of a received data coding format to produce recovered and decoded output data.

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53. In a receiver for adaptively processing an input signal containing data in one of a plurality of different input formats and wherein said data is encoded in one of a plurality of different coding formats, apparatus comprising:

an adaptive timing recovery network for recovering timing information from said input signal as a function of a received input signal format;

an adaptive data recovery network responsive to said timing information for recovering said data;

an adaptive decoder for selectively decoding the data recovered by said adaptive data recovery network, as a function of a received data coding format, to produce recovered and decoded output data;

a selectable decision network, included in one of said adaptive decoder and said data recovery network, for applying a set

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of decision thresholds to data provided by said data recovery network to recover said data, said set of decision thresholds being selected from a plurality of sets of decision thresholds suitable for different input signal formats.

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~~64~~. Apparatus according to one of claims ~~61-63~~⁸²⁻⁸⁴, wherein said receiver for adaptively processing an input signal is automatically configured to be compatible with the format of said input signal.

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CONT ⁸⁶
~~65~~. Apparatus according to one of claims ~~61-63~~⁸²⁻⁸⁴, wherein said receiver for adaptively processing an input signal is automatically configured to be compatible with the format of said input signal in response to a control signal generated by detection apparatus for determining the modulation format used for transmitting said input signal to said receiver.

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~~66~~. Apparatus according to one of claims ~~61~~⁸² and ~~63~~⁸⁴, wherein said data is carrier modulation data; and

said data recovery network is a carrier recovery network for recovering said modulation data.

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~~67~~. In a receiver for adaptively processing a carrier modulated with data in one of a plurality of different modulation formats suitable for satellite, terrestrial or cable transmission and wherein said modulating data is encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission, apparatus comprising:

an adaptive timing recovery network for recovering timing data from said modulated carrier as a function of a received carrier modulation format;

C1
CONT an adaptive carrier recovery network responsive to said timing data for recovering said modulating data from said modulated carrier;

a selectable decision network, included in said carrier recovery network, for applying a set of decision thresholds to data provided by said carrier recovery network to recover said modulating data, said set of decision thresholds being selected from a plurality of sets of decision thresholds suitable for said different modulation formats; and

an adaptive decoder for selectively decoding said recovered modulating data as a function of a received data encoding format to produce demodulated and decoded output data.

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⁸⁹~~88~~. Apparatus according to claim ⁸⁸~~87~~, wherein said receiver for adaptively processing a carrier modulated with data is automatically configured to be compatible with the format of said carrier modulated with data.

⁹⁰~~89~~. Apparatus according to claim ⁸⁸~~87~~, wherein said receiver for adaptively processing a carrier modulated with data is automatically configured to be compatible with said one of a plurality of modulation formats in response to a control signal generated by detection apparatus for determining the modulation format used for transmitting said carrier modulated with data to said receiver.

⁹¹~~90~~. In a receiver for adaptively processing an input signal containing a carrier modulated with video data in one of a plurality of different modulation formats suitable for satellite, terrestrial or cable transmission and wherein said modulating video data is encoded in one of a plurality of different formats suitable for satellite, terrestrial or cable transmission, apparatus comprising:

an adaptive timing recovery network for recovering timing data from said modulated carrier as a function of a received carrier modulation format;

an adaptive carrier recovery network responsive to said timing data for recovering said modulating data from said modulated carrier;

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CONT
a selectable decision network, included in said carrier recovery network, for applying a set of decision thresholds to data provided by said carrier recovery network to recover said modulating data, said set of decision thresholds being selected from a plurality of sets of decision thresholds suitable for different modulation formats;

an adaptive decoder for decoding said recovered modulating data as a function of a received data coding format to produce demodulated and decoded output data;

an adaptive deinterleaver for deinterleaving said demodulated and decoded output and providing a deinterleaved output in accordance with a deinterleaving function selected from a plurality of deinterleaving functions;

an adaptive error processor for error correcting said deinterleaved output to provide an error corrected output; and

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a derandomizer for restoring said error corrected data to an original format thereof before randomization performed for transmission purposes.

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~~71~~. Apparatus according to claim ⁹¹~~70~~, wherein said receiver for adaptively processing an input signal is automatically configured to be compatible with the format of said input signal.

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~~72~~. Apparatus according to claim ⁹¹~~70~~, wherein said receiver for adaptively processing an input signal is automatically configured to be compatible with the format of said input signal in response to a control signal generated by detection apparatus for determining the modulation format used for transmitting said input signal to said receiver.

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~~73~~. A receiver for adaptively processing a carrier modulated with video data in one of a plurality of different modulation formats and wherein said modulating video data is encoded in one of a plurality of different formats, comprising:

an adaptive timing recovery network for recovering timing data from said modulated carrier as a function of a received carrier modulation format;

an adaptive carrier recovery network responsive to said timing data for recovering modulating data from said modulated carrier;

a selectable decision network, included in said carrier recovery network, for applying a set of decision thresholds to data provided by said carrier recovery network to recover said modulating data, said set of decision thresholds being selected from a plurality of sets of decision thresholds suitable for said different modulation formats;

an adaptive decoder for decoding said recovered modulating data and providing a decoded output as a function of a received data encoding format;

an adaptive deinterleaver for deinterleaving said decoded output and providing an output in accordance with a deinterleaving function selected from a plurality of deinterleaving functions;

an adaptive error processor for error correcting said deinterleaved output to provide an error corrected output; and

a derandomizer for derandomizing said error corrected output.

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74. Apparatus according to claim 73, wherein said receiver for adaptively processing a carrier modulated with video data is automatically configured to be compatible with the format of said carrier modulated with video data.

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~~75~~. Apparatus according to claim ⁹⁴~~73~~, wherein said receiver for adaptively processing an input signal is automatically configured to be compatible with the format of said carrier modulated with video data in response to a control signal generated by detection apparatus for determining the modulation format used for transmitting said carrier modulated with video data to said receiver.

⁹⁷
~~76~~. In a system for receiving and adaptively processing a carrier modulated with data in one of a plurality of different modulation formats suitable for satellite, terrestrial or cable transmission, apparatus comprising:

a timing recovery network for recovering timing data from said modulated carrier as supplied via a currently received transmission channel;

an adaptive data recovery network responsive to said timing data for recovering said modulating data from said modulated carrier in one of said plurality of modulation formats; and

a selectable equalizer network included within said adaptive data recovery network for compensating for errors associated with said currently received transmission channel, wherein the configuration of said equalizer network is selected in accordance